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DIRECTORATE OF
INTELLIGENCE

Intelligence Memorandum

The World Copper Market: Recent Trends and Prospects

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CENTRAL INTELLIGENCE AGENCY
Directorate of Intelligence
January 1973

INTELLIGENCE MEMORANDUM

THE WORLD COPPER MARKET:
RECENT TRENDS AND PROSPECTS

SUMMARY

1. The world copper market¹ was in much better balance during 1970-72 than in the late 1960s. Copper consumption (including small Communist purchases) continued to move irregularly - near-stagnation in 1970 being followed by a 2% drop in 1971 and a 6% rebound in 1972. Partly by design and partly by chance, copper production roughly paralleled consumption, remaining a little above it each year. The surplus alleviated the intense upward price pressures of preceding years and permitted substantial inventory rebuilding. At close to US \$0.50 per pound in the United States and on the London Metal Exchange (LME) in December 1972, the price of copper was well below earlier peaks but far above the depressed level of the early 1960s. Current prices allow most mines to make reasonable profits but are providing few windfalls because production costs have risen greatly during the past decade.

2. Strikes, natural disasters, and disrupted expansion plans adversely affected copper mine output for most members of the Intergovernmental Council of Copper Exporting Countries (CIPEC). As a result, CIPEC's share of production from non-Communist countries dropped from 40.7% in 1969 to 38.6% in 1972. At the same time, a poor foreign investment climate in some CIPEC countries encouraged copper mining investment in other, more politically stable nations - mainly Canada, the United States, Australia (including its protectorate, Bougainville), and the Philippines. CIPEC's production share almost certainly will continue to decline during 1973-75

1. Excluding production and consumption in the Communist countries, but including their net purchases from the non-Communist countries.

Note: This memorandum was prepared by the Office of Economic Research and coordinated within the Directorate of Intelligence.

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because capacity is expected to increase only about 10%, compared with an estimated 30% expansion elsewhere. Dependence of non-Communist countries on CIPEC copper thus will probably continue to diminish, and their ability to influence supplies and prices will be further eroded.

3. Although sharp short-run price fluctuations could occur, the world copper market is likely to be rather soft through 1975, with average annual prices on the LME perhaps not moving far from the present level. Copper demand may grow a little faster than the long-term average of 4.5% annually because of accelerated economic growth and shrinking substitution opportunities. Non-Communist supplies generally should be sufficient to accommodate the increased demand, although such circumstances as strikes, mine accidents, and political turmoil may, of course, cause temporary shortages.² Net Communist purchases probably will continue to be too small to have much effect on prices.

DISCUSSION

Some Market Characteristics³

4. The world copper market has three fairly distinct components. One is the United States, which possesses about 30% of mine capacity of non-Communist countries and normally imports only 10% of its copper requirements. The other non-Communist countries constitute a second component, in which supplies move mainly to Western Europe and Japan from Chile, Peru, Zaire, and Zambia – the members of CIPEC – and from Canada. The CIPEC countries account for about 38% of mine capacity and 70% of exports in the non-Communist countries. Communist countries make up a relatively self-sufficient third component, with output approximating one-fourth of the non-Communist total. Traditionally, East-West copper trade has been limited to a small net outflow from non-Communist sources. The principal destination was the USSR in the early 1960s but has since been the People's Republic of China (PRC).

2. In January 1973, Rhodesia protested black guerrilla activity within its borders by cutting off Zambian shipments over the trans-Rhodesian rail line of goods other than copper. Zambia reacted by also stopping copper shipments over this route, which normally amount to nearly half of its total deliveries and about 10% of world exports. This action probably will effect copper supplies and prices only temporarily – either because deliveries through Rhodesia are resumed or because Zambia manages to ship a larger share of its copper through Tanzania to Dar es Salaam.

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5. Because US copper producers maintain more stable prices than do other suppliers, the non-Communist countries have a two-tiered price system. The US posted price sometimes is slow to reflect changing supply-demand conditions. Most other transactions, although covered by long-term contracts, are priced at the LME cash quotation on the day of delivery. Because the LME actually handles only a small part of the world copper trade and is used for hedging, day-to-day price fluctuations are often sharp. Both US and LME prices have changed considerably over the long term, mainly because the industry has had great difficulty adjusting supply to demand. The long leadtime required for new mines, typically large individual additions to capacity, and the tendency of producers to start expansion programs belatedly and at about the same time have all contributed to irregular growth of capacity and wide price swings.

Demand and Supply Trends, 1970-72

6. Non-Communist copper demand and supply generally were in better balance during 1970-72 than in the late 1960s. Consumption of refined copper continued to move erratically owing to the slowdown and subsequent pickup in economic activity in most industrialized countries. The US and LME prices nevertheless progressively converged and became more stable. Much of the earlier pressure on prices vanished because copper production ran ahead of demand each year, although not by a wide margin.

7. The 5% increase in refined copper output in 1970 brought substantial price relief because consumption rose only slightly (see Figure 1). Although consumption dropped in 1971, production declined even more, mainly because of a 90-day strike in US mines and refineries. To meet reviving demand in 1972, the industry drew heavily on scrap as well as ore supplies and boosted production by a strapping 12%, to 6.4 million metric tons. The increase overcompensated for recovery in demand, however, and LME inventories of refined copper reached an all-time high of some 180,000 tons in November.

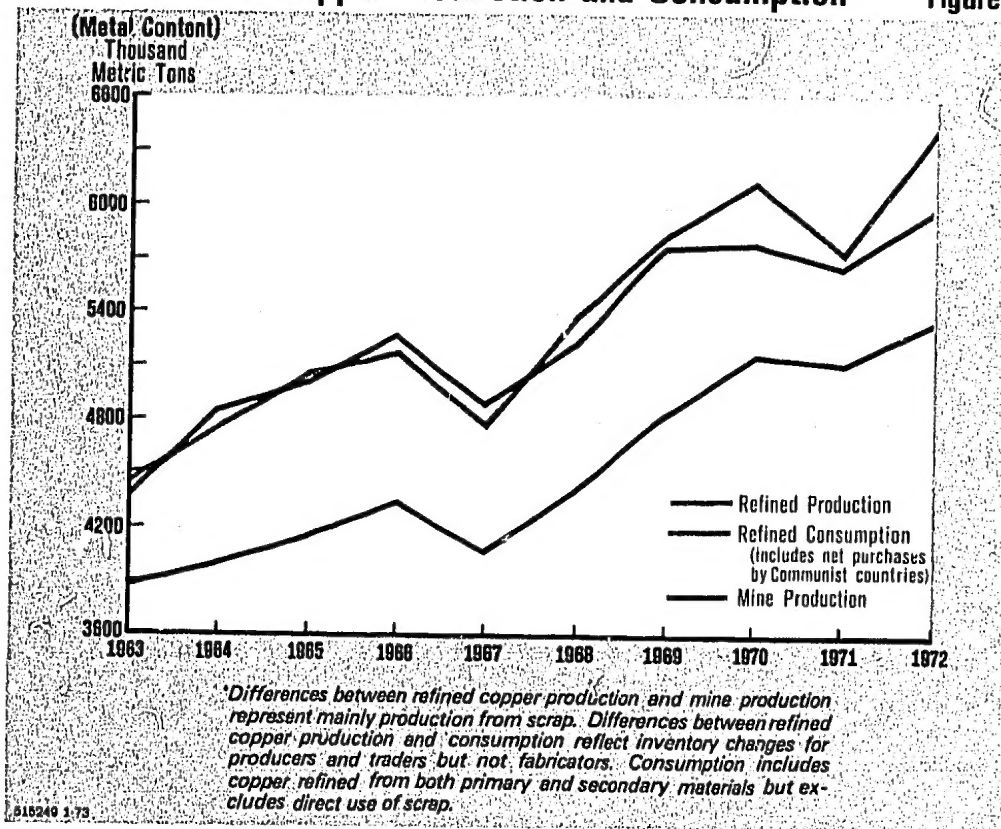
8. Reflecting these developments, the LME copper price dropped from an average of \$0.80 per pound in March 1970 -- not far below the 1966 record monthly high of \$0.86 -- to \$0.46 in January 1971 (see Figure 2). Despite two brief subsequent periods of rising prices, the LME price in December 1972 still averaged only \$0.47. The US producer price, which reached \$0.60 per pound during mid-1970, generally remained above the LME price during 1971-72, amounting to \$0.51 in December 1972.

9. Although about two-thirds above the depressed level of the early 1960s, current copper prices are not particularly high relative to production costs. These costs, which vary widely among mines, have increased by about

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Non-Communist Copper Production and Consumption* Figure 1



75% during the last decade and now average \$0.35-\$0.40 per pound. They have been pushed up by the gradual but persistent decline in ore grades and by increased exploration, capital, and labor costs. Although no major mines have been forced to close, some operations in Chile, for example, barely have been breaking even. Once the world's lowest cost producer, Chile has become the world's highest cost producer in recent years because of inept management, featherbedding, technical problems following nationalization, and artificially low exchange rates.

Developments in the CIPEC Countries

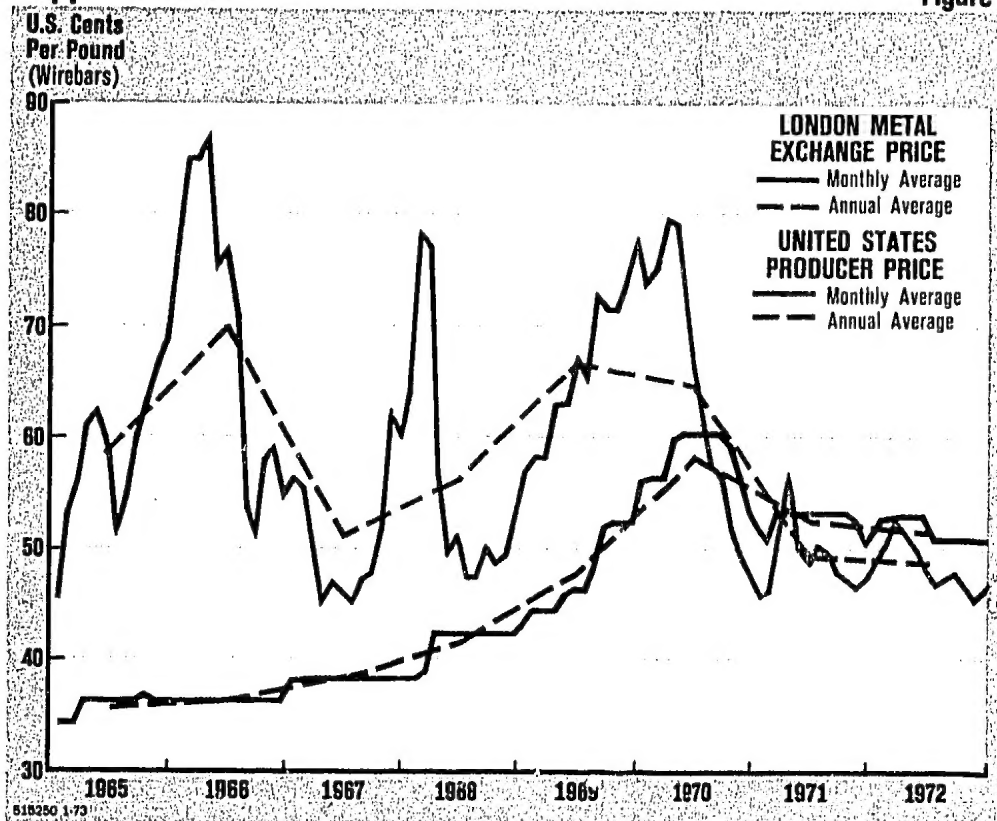
10. Nationalization of foreign-owned properties, strikes, political uncertainties, and natural disasters combined to hold the CIPEC countries to only a 5% rise in mine output during 1970-72. Their share of the non-Communist total consequently slipped to an estimated 38.6%, compared with 40.7% in 1969 and a 43% average during 1960-63 (see Figure 3).

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Copper Prices

Figure 2



11. Chilean output has remained close to 700,000 tons despite huge US-company investments during 1967-70 aimed at boosting capacity to 1.05 million tons by 1972. Production stagnated in 1970 because of a five-week strike at Chuquicamata, the largest mine. Although the US companies had not yet completed their expansion programs and were still grappling with technical problems when their properties were nationalized in mid-1971, capacity did increase to some 750,000 tons by the end of year. Because of loss of key personnel, labor turmoil, and shortages of materials and parts, however, output rose only marginally in 1971 and probably declined slightly in 1972 (see Table 1).

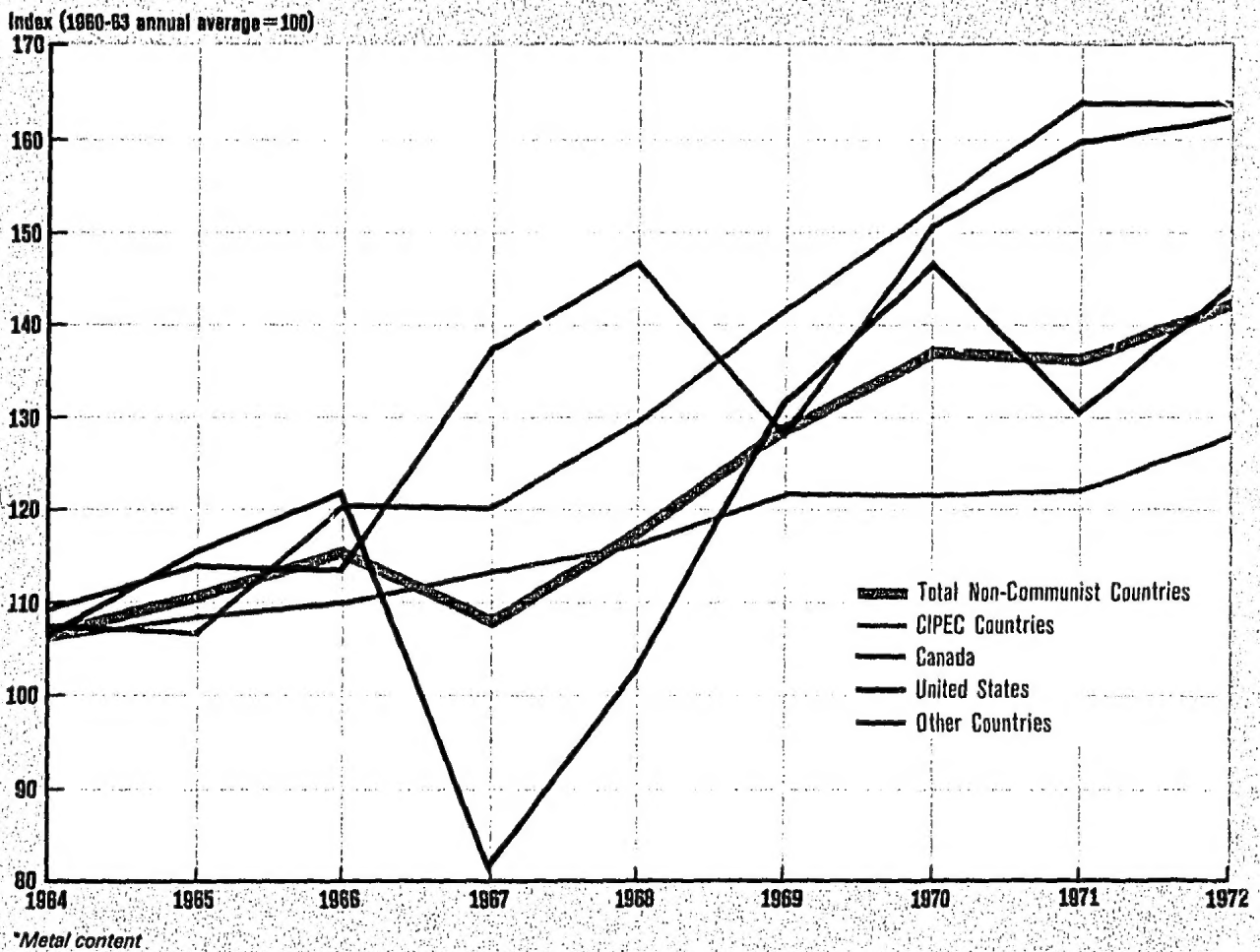
12. Labor difficulties and continued wariness among foreign investors have made Peru's recent production record almost as poor as Chile's. After rising by 6.5% in 1970, copper output has stagnated at some 210,000 tons. Peru's still-untapped copper deposits are the CIPEC countries' largest and richest, as far as is known, but the Velasco government's development plans

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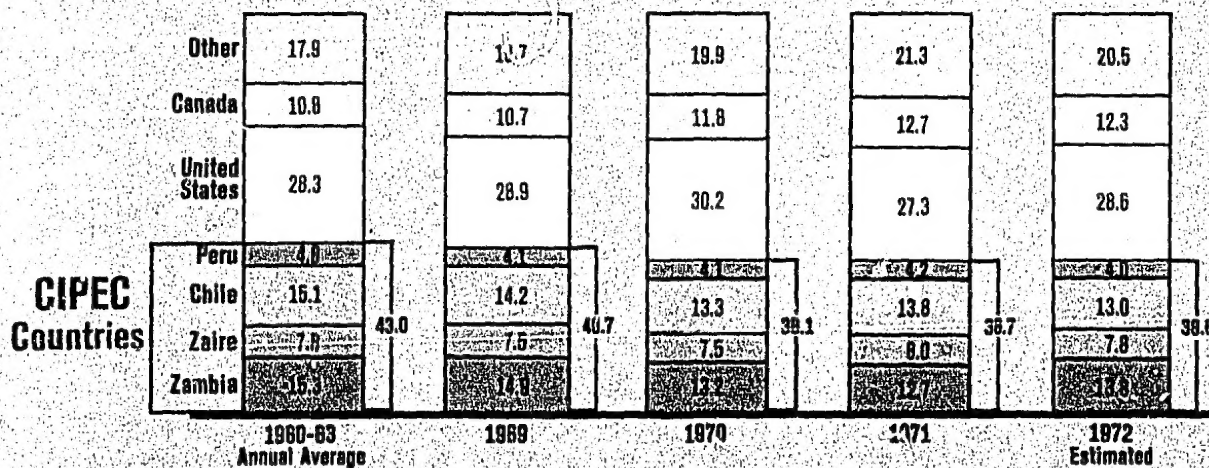
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Indexes of Production* From Non-Communist Copper Mines

Figure 3



Percentage Distribution of Production



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Table 1

Mine Production of Copper in the CIPEC Countries

	<i>Thousand Metric Tons</i>					<i>Percentage Increase 1970-72</i>
	<i>1960-63 Average</i>	<i>1969</i>	<i>1970</i>	<i>1971</i>	<i>1972 Estimated</i>	
Total	1,615	1,971	1,969	1,979	2,073	5.2
Chile	567	688	686	708	700	1.7
Peru	182	199	212	213	212	6.5
Zaire	291	364	387	407	420	15.4
Zambia	575	720	684	651	741	2.9

have got practically nowhere since 1968. Only a small part of the foreign capital needed for the expansion program has been forthcoming so far, reflecting the regime's tough terms for private participation and the companies' inability to obtain foreign financing in the wake of the still-unsettled dispute over expropriation of the International Petroleum Company properties.

13. Nationalization of virtually all copper mine capacity in Zaire in 1967 and Zambia in 1970 has not prevented output gains. Although some expansion plans may have been delayed, the investment climate did not suffer lasting damage; the private companies, which soon started operating the mines under service contracts, have continued to expand capacity. Zaire has increased production considerably since 1969, accounting for more than one-half of the CIPEC countries' total gain. Zambian output was set back by the September 1970 cave-in at the Mufulira mine – the world's second largest underground copper mine – but it nevertheless reached a new high last year.

Developments Outside the CIPEC Countries

14. Among the non-CIPEC countries, growth in copper mine output during 1970-72 was most rapid in Australia, Canada, and the Philippines. Much of the impetus for this expansion came from Japan, the world's second largest copper consumer and the leading importer of unrefined copper. Australian production increased an average of 9% annually, mainly as a result of surging exports to Japan. Production gains came from vigorous expansion programs by MIM Holdings at Mt. Isa, by Mt. Lyell Mining and

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Railway Co. in Tasmania, and by Peho-Wallsend in the Northern Territory. Japan's needs also spurred copper development in Canada and the Philippines, as well as at Bougainville in the Territory of Papua/New Guinea (which is being administered by Australia under a United Nations' mandate).

15. US copper production has continued to be one of the most volatile components of supply in the non-Communist countries. Output increased sharply in late 1969 and in 1970, as a Phelps Dodge mine in New Mexico, Duval's Sierrita mine in Arizona, and Anaconda's Twin Buttes mine were brought on line in response to strong copper demand. Labor problems, however, once again took their toll in 1971, when a 90-day strike resulted in production losses in both ore and refined copper, estimated at 200,000 tons and 225,000 tons, respectively. In 1972, production merely recovered to about the 1970 level.

Impact of Communist Transactions

16. Communist transactions did not have a major influence on the world copper market during 1970-72. The PRC, which has not been able to rely on countries belonging to the Council for Mutual Economic Assistance for imports, has had to purchase about 100,000 tons annually since 1968. While this amount represents about one-fourth of PRC consumption, it is only 2% of non-Communist refinery production. In 1971, Peking switched [redacted] to making direct purchases from Zambia, Chile, and several other countries. This action temporarily raised LME prices because copper buyers [redacted]

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[redacted] reasoned that direct PRC purchases would reduce supplies coming to the LME. The effect of PRC purchases on copper prices in the non-Communist countries has been mitigated by Soviet sales of up to 40,000 tons annually through the LME.

Growth of Mine Capacity Through 1975

17. Although expansion programs probably will fall well behind schedule as usual, we expect mine capacity in the non-Communist countries to rise by about 25% during 1972-75, to 7.0 million tons (see Table 2). In terms of tonnage, the largest gains are likely to take place in the United States, Canada, and Bougainville. The United States, Canada, and Australia (including Bougainville) account for about 66% and all non-CIPEC countries for 82% of the total additions anticipated.

18. The CIPEC countries' mining capacity is expected to increase only about 10%, despite the abundance of copper resources and plans calling in the aggregate for a 37% rise. As a result, the countries' share of total capacity is projected to drop from 38% in 1971 to 34% in 1975. The gap

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Table 2

Non-Communist Countries: Estimated Changes in Copper Mining Capacity

	Annual Production Capacity (Thousand Metric Tons, Copper Content)			Percent of Total Capacity	
	Estimated End of 1971	Probable Additions During 1972-75	Expected End of 1975	Estimated End of 1971	Expected End of 1975
Total	5,616	1,346	6,962	100.0	100.0
CIPEC countries	2,140	243	2,383	38.1	34.2
Chile	755	25	780	13.4	11.2
Peru	215	63	278	3.8	4.0
Zaire	405	110	515	7.2	7.4
Zambia	765	45	810	13.6	11.6
Other countries	3,476	1,103	4,579	61.9	65.8
Australia	163	76	239	2.9	3.4
Canada	740	275	1,015	13.2	14.6
Bougainville	Negl.	180	180	Negl.	2.6
United States	1,682	358	2,040	30.0	29.3
Other	891	214	1,105	15.9	15.9

between accomplishment and plan probably will be largest in Chile. Chile's planned 42% expansion reflects the expectation that the large investments made in the five largest mines during 1967-70 eventually will yield the originally scheduled capacity of a little more than 1 million tons. However, serious technical difficulties - some of which are expected to worsen - plus continuing management and labor problems probably will prevent any overall capacity increases in these mines. We expect that Chile's production capacity will increase only by the 25,000 tons provided by the new Sagasca mine, which is being financed by Continental Copper and Steel Co. with some assistance from Japanese investors and a World Bank affiliate.

19. Zaire is likely to achieve about 90% of its planned capacity increase, or a gain of 110,000 tons - the largest among the CIPEC countries. The state company, Gecomines, has obtained financing from the Export-Import Bank and the European Investment Bank for expansion of its facilities, and Zaire has also been successful in inducing private foreign investors to look for and develop additional copper deposits. Peru has taken steps to improve the foreign investment climate, and chances are good that

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the state mining company's Cerro Verde project will be brought on line by the end of 1975. The government of Zambia also has scheduled sizable capacity expansion through 1975. While no serious obstacles are in view, full completion of the plan seems likely to be delayed until 1976 or 1977.

General Outlook for Copper Supply, Demand, and Prices

20. If mine capacity rises smoothly to the expected level for 1975 and if demand expands at the average long-term rate of 4.5%, there should be no strong, persistent pressure in either direction on the present world market price of around \$0.50 per pound. As is usually the case in trying to gauge future commodity prices, however, the influences of these contingencies are uncertain. Projected additions to mine capacity amount to an average annual gain of 5.5% compared with 4% during 1961-70. The prospective general relationship between supply and demand and the present high inventory level suggest that the average level of copper prices should not be much higher during 1973-75 than in 1971-72. But what actually happens to prices from month to month naturally will depend on short-term supply and demand trends, which will not necessarily be congruent.

21. Copper demand has long been increasing irregularly and probably will continue to do so, provoking price changes because of the slow supply response. Under the influence of economic booms, recessions, changing prices, shortages, and technological developments leading to substitution of other materials, annual changes in copper consumption ranged all the way from -7% to 11% during 1961-72. Acceleration of economic activity in some leading copper-consuming countries raised the growth rate for copper consumption above the long-term average in 1972 and probably will keep it there in 1973. The growth of copper consumption may remain somewhat above the 1961-70 trend in 1974-75 because the average copper price level is expected to remain near the present moderate level and the most profitable opportunities for substitution of other materials have been exhausted.

22. The Communist countries' purchases are not likely to have a significant impact on the world copper market through the mid-1970s. China will try to hold down copper imports as much as possible and, therefore, is unlikely to increase imports to more than 150,000 tons annually by 1976. The Soviet Union recently has concluded direct purchase agreements with CIPEC countries for about 100,000 tons per year, even though it plans to increase its own production by 35%-40% during 1971-75. The interest of the USSR in CIPEC copper is motivated by a desire to enhance its political position rather than a need for the copper. Thus the USSR undoubtedly will resell much of the imported copper in the world market as it has done in the past with such commodities as Cuban sugar.

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23. Production capacity is likely to grow in spurts during 1973-75, and actual output will continue to be vulnerable to such circumstances as strikes, mine accidents, and political turmoil. Additions to mine capacity probably will be appreciably larger in 1973 and 1975 than in 1974. Because the expected spurt in 1973 coincides with expected strong demand, it should help to keep prices near recent levels. A prolonged strike in the United States could drastically tighten non-Communist copper supplies, as in 1967. Political uncertainties in Chile and Zambia and (to a lesser extent) in Peru pose continuing threats to sustained full use of capacity or scheduled expansion programs.

24. The main copper consumers should become somewhat less dependent on the CIPEC countries' resources during the next several years. The CIPEC group's share of non-Communist output and exports is likely to decline further, and the countries will be in a weaker position than in the past to force prices up by withholding supplies. Effective concerted action to raise copper revenues thus seems highly unlikely. Barring major production troubles of its own, the United States will continue to have the most secure supply and be in the best position to cope with any curtailment of CIPEC shipments. Western Europe and Japan will remain heavily dependent on the CIPEC countries, but expanding output in Canada, Australia, and Bougainville - together with continuing availability of significant supplies from South Africa and the Philippines - promise to make them less vulnerable than formerly.

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